

## **REFERENCE 3**

**Letter, H.A. Flaughner to File  
"Sewage Disposal System - EBR-II,"  
3/12/64**

# Argonne National Laboratory

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INTRA-LABORATORY  
CORRESPONDENCE

DATE March 12, 1964  
SUBJECT Sewage Disposal System - EBR-II  
FROM H. A. Flaughner *H. A. Flaughner*  
TO FILE

The purpose of this memo is to record the things that have transpired in the past few weeks and to record the present thinking with regard to the design of the subject item, as envisioned by the Schedule 44 entitled General Facilities Improvement-East Area, dated May, 1963.

During February, 1964, when the design of the Sewage Disposal System was started, it was suggested that the present Imhoff tank-leaching pit system be tied into the new system in order to provide for sewage disposal if the present disposal system should, for some reason, become incapable of handling the load.

It was known at that time that the Imhoff tank-leaching pit system was designed for 200 people and that it had been subjected to an overload population-wise for a considerable period of time; that is to say, there are approximately 300 people at this site, more than 200 of whom have been utilizing it for about a year. During this overload period it was reported that some offensive odors<sup>1</sup> were coming from the present Imhoff tank-leaching pit combination, and the feeling was that this system was severely overloaded<sup>2</sup>. This feeling was reinforced by the fact that the NRTS Engineering Standards for sewage-treatment systems serving over 200 people require a complete treatment, that is, both primary and secondary treatment<sup>3</sup>, as well as some method of disposal of the effluent that has been chlorinated. Our system, of course, has only a primary treatment, which is chlorinated and then disposed of in the leaching pit.

To verify the need for this additional tie and to justify the size of the new facilities, tests were run on the present sewage-treatment system. These tests showed that the amount of raw sewage going through the sewage system was considerably less than the design criteria and considerably less than the criteria set down by the NRTS Standards. The NRTS Standards require that the sewage-treatment plant be designed for 50 gallons per day per capita. The present system was designed, according to the report issued by The H. K. Ferguson Company in July, 1957, for 200 people at 35 gallons per day per capita; however, this quantity was substantially increased until it became 35,600 gallons per day as the design quantity. The flow from the Imhoff tank to the leaching pit is so low that it does not rise in the weir high enough to be in the reliable area for measurement; therefore, measurements were taken by pumping cycle time. This showed that there was approximately 3,500 gallons per day of raw sewage going to the Imhoff tank, in other words, about one tenth of the design rate.

March 30, 1964

In addition to this test, additional water was put into the leaching pit to find out its capacity. Over the week end of March 7 and 8, approximately 40 gallons per minute was put into the leaching pit; and it handled this quantity of water without any apparent trouble.

There are at present approximately 300 people using the three sanitary sewage-disposal systems here at the site. Approximately 25 of these people are using the septic-tank-type sanitary facilities provided with Building 753. Approximately 30 people are using the septic tank-drainfield facilities provided with the Cafeteria. This leaves approximately 245 people who are presently using the Imhoff tank-leaching pit sewage-disposal facilities. Using the figure of 3500 gallons per day and 245 people, we are pumping to this system something slightly less than 15 gallons per person per day. This figure of 15 gallons per day per person seems to agree with the Smith and Loveless engineering data that is attached to Joe Auer's memo to D. F. Wood dated March 10, 1964. This presents the present situation, wherein the Imhoff tank-leaching pit sewage-treatment system is handling more than 200 people per day and, in so doing, is violating the requirements of the Idaho Operations Office design criteria on a population basis but is not violating the gallon-per-day criteria established by the same standards.

It has been decided, therefore, that we are to request, by way of a revised Schedule 44 for the utilities expansion, that money be provided to establish an additional sewage-disposal system that would handle the Cafeteria wastes, the wastes that originate in Building 753, and any future wastes that originate from the Office Addition on the south end of Building 752, the machine shop, or the AFSR-ZPPR complex. This sewage-treatment system will, more than likely, be a lagoon rather than an Imhoff tank, assuming that the lagoon is more economical and assuming that the treatment system will be placed north of the existing fence line in approximately the same location that an Imhoff tank-leaching pit combination was envisioned by the Schedule 44 dated May, 1963.

HAF:ds

- 1, 2, & 3 - Walt Persky reviewed this memo and his comments are on the attached sheet.

odors that are given off by the Imhoff tank are those of <sup>AN</sup> ~~anaerobic~~ aerobic digestion process and are <sup>IN THIS CASE</sup> local, only anaerobic odors are considered "offensive". An Imhoff tank that has gone bad would give off hydrogen sulfide - which would with prevailing winds, be very evident every day. The existing system has often been criticized by persons who have mistaken the hydrogen sulfide gases which are released to this area atmosphere from the auxiliary boilers flue gas and the heated oil day tank.

② The system as it is at present is not loaded to capacity based on three important factors; (1) G.P.D. of sewage, (2) loading in gallons per 8 hour day and (3) strength of sewage.

③ Secondary system an excellent idea.

Is the planned stabilization pond considered a primary system?

*W. Parish's  
Comments*